

Section of Urology

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The Os Penis in Man and Beast

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MANY animals normally possess a bone in their penis, called the *os penis* or *os priani* or *baculum*. In the whale it measures 2 metres in length and 40 cm. in circumference at the base, and in the walrus it is 55 cm. long. As the ladder of evolution is ascended, the bone steadily diminishes in size until in the anthropoid ape it has degenerated into an insignificant structure 10 to 20 mm. short. Its location and shape vary considerably. In the dog, for example, it is a channel for the urethra, while in the bear and wolf it is essential for copulation. The baculum in the squirrel exhibits marked differences in the various groups of species and has been used as a guide to their classification. In *Sciurus vulgaris* it is spatula-shaped and frequently has attached to the shaft by a ligament a separate blade, the edge of which is extremely sharp and possibly serves the purpose of perforating the resistant hymen in the female. The *os penis* of the otter is exceedingly hard, yet specimens of the bone have been found which have been fractured and healed. When male otters fight, they seize the external genitalia of their adversary and with their powerful jaws and sharp teeth often succeed in breaking the bone.

The *os penis* apparently exists only in animals possessing poorly developed erectile tissue, for it serves to produce a rapidly erectile state of the organ. It is doubtful if Man ever had such a bone, and no one has yet found any evidence of the mammalian baculum in the human penis. It is true that the erectile bodies of elderly men are a favourite site for the ectopic formation of bony plaques, particularly in the presence of arteriosclerotic changes or in syphilitic gummata. Such bone, however, does not represent a phylogenetic structure.

In animals the *os penis* is useful, being an aid to copulation; in man the *os penis* is a nuisance, obstructing the act. In animals the bone is single and situated in the glans; in man ossification is multiple and found in the shaft of the organ.

In 1743 François de la Peyronie, founder of the Académie Royale de Chirurgie, described "des tumeurs dures formées dans les corps caverneux": on erection "la verge décrivait un arc courbé vers la partie supérieure du pubis" (*Mém. Acad. Chir., Paris, 1743, t. 2, part 2, 318–33*). The aetiology of what has since been called Peyronie's disease is obscure; its frequent association with Dupuytren's contracture suggests a fibroplastic diathesis. Definite evidence of a vitamin-E deficiency has not been proved, and it certainly does not represent an atavistic tendency manifested in the formation of a rudimentary *os penis*. An amusing case of "Peyronie's disease—strabisme du pénis"—is reported by J. W. W., Jr. (*Boston med. surg. J., 1903, 148, 245*). The patient complained of "squint of the cock".

Dr. Osman Hill said that before he ventured to speak on the comparative anatomy he desired to make one remark on the so-called human *os penis*. In his opinion man had never possessed this structure. The only other primate animal which had no *os penis* was *Tarsius spectrum*, a very primitive primate. There were many respects in which man remained primitive, and in this particular instance—the absence of the *os penis*—man retained that primitive characteristic which was shared by himself and *Tarsius*. An old German anatomist about a hundred and twenty years ago spoke of a homologue of the *os penis* in man in the form of a cartilaginous nodule occasionally present in the centre of the glans, in the same position in which was found the diminutive *os penis* in the anthropoid apes. But the anthropoid apes parted from man's lineage a long time ago. If they had a common ancestor it was long before they had an *os penis*.

In other respects this was, of course, a practically universal mammalian feature. There were very few animals below the primates which lacked an *os penis*, and as had been shown in some of the examples illustrated by Dr. Bett, it could take a most bizarre form. He had studied it fairly closely in some squirrels and had been astounded by the difference in closely related forms. In the present state of knowledge no one could say what the meaning was.

Dr. Bett had spoken of some forms in the squirrel as having a chisel shape or razor-like edge, and had suggested that this was designed for breaking through the hymen. He knew that nature did produce some extraordinary things for curious purposes, to be used on one occasion only, but the suggestion in this instance sounded a little far-fetched to him. He imagined that the explanation was—and this would account for many of the bizarre forms found in squirrels—that the structure

was designed, not to penetrate the hymen, but to excavate the enormous mass of vaginal squamous-celled production brought about by the hormone of the follicular phase of the ovarian cycle, which, of course, was recognized by vaginal smears. In squirrels and other rodents the amount of desquamation in the vagina was so great as to occlude the lumen, and the modifications of the *os penis* might be connected with that.

Mr. W. H. Graham said that from time to time cases of Peyronie's disease were seen, and a point arose about treatment. He thought that surgical excision had not given good results. The patients complained of curvature, and, secondly, of a constant ache in the organ. They had heard of good results from X-ray therapy and radium plaques, but his own experience of treatment with X-ray therapy was that while the pain or ache disappeared the curvature remained. Probably the best line of treatment was to leave them alone.

The Bladder Neck in Urinary Obstruction

By D. M. WALLACE, O.B.E., F.R.C.S.

ONE of the fundamental problems in Urology lies in the mechanism whereby an enlarged prostate, be it large or small, interferes with the satisfactory emptying of the bladder, with the resultant acute or chronic retention of urine. The size of the adenomatous enlargement bears little relation to the question of retention and it is suggested that there must be some other factor apart from size alone that plays a decisive part in the onset of urinary obstruction.

Dogs are the only animals that develop an enlarged prostate, but this condition is three times as frequent in domesticated as opposed to the wilder breeds; dogs rarely suffer from urinary obstruction from an adenomatous enlargement although they may do so with vesical stones or prostatic infections; there is hardly any muscle at the bladder neck in dogs. This last observation has been responsible for this investigation into the relationship between bladder neck musculature and urinary obstruction in men.

During the last two years 343 cases of sudden death have been examined in coroners' mortuaries. These cases were typical of the population for a corresponding age-group since none of them were being treated for prostatic symptoms or for other diseases, a point of difference between this group and Randall's much larger series of 1,400 cases dying in hospital from other diseases.

The age-group 40-50 has been taken arbitrarily as a standard of normality and abnormalities in the later age-groups have been assessed on this basis. These abnormalities have been grouped under the following headings which are only representative of the major abnormality: Lateral lobe enlargement (enucleable); Adenomatous posterior commissure (which includes the typical "middle lobe"); Muscular posterior commissure (Marion's disease); Carcinoma (clinical not histological); Previous prostatic operations.

Table I demonstrates the incidence of abnormalities at the bladder neck in age-groups from 50 and over. Table II demonstrates the incidence of obstructive lesions such as gross

TABLE I						
Age-groups of cases examined:						
	40-50	60-70	80-90			
Cases	57	74	100	75	35	2
Total cases of 50 and over	..					286
Total abnormalities of the bladder neck					140

TABLE II			
	Normal	Re-bladder	Re-tention Total
Lateral lobe enlargement..	57	7	64
Adenomuscular commissure (inc. middle lobe)	23	17	40
Muscular commissure ..	8	21	29
Prostatic carcinoma ..	—	2	2
Previous prostatic operations	—	—	5
			140

trabeculation, sacculation, diverticula or hydro-ureters in each type of bladder neck abnormality. It will be seen from this table that a pure lateral lobe adenopathy may frequently exist with an apparently normal bladder but that the muscular commissure (Marion's disease) is possibly the most likely single lesion to result in urinary obstruction.

In order to clarify this point, large wedge sections were cut of the bladder neck in two types of patient, those with an enlarged prostate mainly of a lateral lobe type but with a normal bladder, and those that had died during a period of urinary obstruction. The points of difference between these two types are referable to the muscular component, in the first type (Fig. 1) there is little prostatic capsule and hardly any circular muscle at the bladder neck whereas in the second group there is a mass of muscle above the adenoma at the internal meatus (Fig. 2), and in Fig. 3 there is also a well-developed muscular prostatic capsule. It would appear that urinary obstruction may be the result of the size of the adenoma in relation to the muscular capsule and the tension at the bladder neck—in other words a